Exhibit 14

U.S. Department of the Interior
U.S. Geological Survey

MINERAL COMMODITY SUMMARIES 2024

Abrasives
Aluminum
Antimony
Arsenic
Asbestos
Barite
Bauxite
Beryllium
Bismuth
Boron
Bromine
Cadmium
Cement
Cesium
Chromium
Clays
Cobalt
Copper
Diamond
Diatomite
Feldspar
Fluorspar
Gallium
Garnet
Gemstones
Germanium
Gold
Graphite
Gypsum
Hafnium
Helium
Indium
Iodine
Iron and Steel
Iron Ore
Iron Oxide Pigments
Kyanite
Lead
Lime
Lithium
Magnesium
Manganese
Mercury
Mica
Molybdenum
Nickel
Niobium
Nitrogen
Palladium
Peat
Perlite
Phosphate Rock
Platinum
Potash
Pumice
Quartz
Rare Earths
Rhenium
Rubidium
Salt
Sand and Gravel
Scandium
Selenium
Silicon
Silver
Soda Ash
Stone
Strontium
Sulfur
Talc
Tantalum
Tellurium
Thallium
Thorium
Tin
Titanium
Tungsten
Vanadium
Vermiculite
Wollastonite
Yttrium
Zeolites
Zinc
Zirconium

USGS
science for a changing world

Cover: Photograph of microchips, also known as integrated circuits (ICs), on a semiconductor wafer. Microchips have become an integral part of daily life, as they are essentially the brain of modern electronics found in everything from computers, communication devices, medical and healthcare technology, vehicle and transportation systems, satellites, military systems, clean energy technology, wireless networks, the Internet of Things (IoT), and countless other applications. Advances in semiconductor and microchip technology have enabled the development of more compact, faster, more powerful, more reliable, and less expensive electronic devices. Gallium (p. 74) and silicon (p. 160) are two important materials in modern semiconductor technology. Gallium, which is extracted from bauxite (aluminum) and zinc ores, used in the form of gallium arsenide (GaAs) and gallium nitride (GaN) on a silicon substrate, offers superior semiconductor performance compared to silicon, including higher electron mobility, optical features, and higher energy efficiency, making it the preferred material of choice for high-performance and high-frequency specialty applications, such as high-speed telecommunications (for example, 5G networks), high-performance computers, and aerospace systems. High-purity silicon is currently the most widely used material for semiconductor microchips because of its electrical properties, abundance, and cost effectiveness. Photograph courtesy of Taiwan Semiconductor Manufacturing Co., Ltd. (TSMC).

U.S. Department of the Interior
U.S. Geological Survey

MINERAL COMMODITY SUMMARIES 2024

Abrasives	Fluorspar	Mercury	Silicon
Aluminum	Gallium	Mica	Silver
Antimony	Garnet	Molybdenum	Soda Ash
Arsenic	Gemstones	Nickel	Stone
Asbestos	Germanium	Niobium	Strontium
Barite	Gold	Nitrogen	Sulfur
Bauxite	Graphite	Palladium	Talc
Beryllium	Gypsum	Peat	Tantalum
Bismuth	Hafnium	Perlite	Tellurium
Boron	Helium	Phosphate Rock	Thallium
Bromine	Indium	Platinum	Thorium
Cadmium	Iodine	Potash	Tin
Cement	Iron and Steel	Pumice	Titanium
Cesium	Iron Ore	Quartz	Tungsten
Chromium	Iron Oxide Pigments	Rare Earths	Vanadium
Clays	Kyanite	Rhenium	Vermiculite
Cobalt	Lead	Rubidium	Wollastonite
Copper	Lime	Salt	Yttrium
Diamond	Lithium	Sand and Gravel	Zeolites
Diatomite	Magnesium	Scandium	Zinc
Feldspar	Manganese	Selenium	Zirconium

USGS
science for a changing world

U.S. Geological Survey, Reston, Virginia: 2024

Manuscript approved for publication January 31, 2024.

For more information on the USGS—the Federal source for science about the Earth,
its natural and living resources, natural hazards, and the environment—
visit https://www.usgs.gov or call 1–888–ASK–USGS.

For an overview of USGS information products, including maps, imagery, and publications,
visit https://store.usgs.gov/.
For sale by the Superintendent of Documents, U.S. Government Publishing Office
P.O. Box 979050, St. Louis, MO 63197–9000
Phone: (866) 512–1800 (toll-free); (202) 512–1800 (Washington, DC, area)
Fax: (202) 512–2104
Internet: https://bookstore.gpo.gov
Email: ContactCenter@gpo.gov

Suggested citation:
U.S. Geological Survey, 2024, Mineral commodity summaries 2024: U.S. Geological Survey, 212 p., https://doi.org/10.3133/mcs2024.

Associated data for this publication:

U.S. Geological Survey, 2024, Data release for mineral commodity summaries 2024: U.S. Geological Survey data release,
https://doi.org/10.5066/P144BA54.

ISBN 978-1-4113-4544-7

CONTENTS

General:

Mineral Commodities:

INSTANT INFORMATION

Information about the U.S. Geological Survey, its programs, staff, and products is available from the internet at https://www.usgs.gov or by calling (888) ASK–USGS [(888) 275–8747].

This publication has been prepared by the National Minerals Information Center (NMIC). Information about NMIC and its products is available from the internet at https://www.usgs.gov/centers/national-minerals-information-center or by writing to Director, National Minerals Information Center, 988 National Center, Reston, VA 20192.

KEY PUBLICATIONS

Minerals Yearbook—These annual publications review the mineral industries of the United States and of more than 180 other countries. They contain statistical data on minerals and materials and include information on economic and technical trends and developments and are available at https://www.usgs.gov/centers/national-minerals-information-center/publications. The three volumes that make up the Minerals Yearbook are volume I, Metals and Minerals; volume II, Area Reports—Domestic; and volume III, Area Reports—International.

Mineral Commodity Summaries—Published on an annual basis, this report is the earliest Government publication to furnish estimates covering nonfuel mineral industry data and is available at https://www.usgs.gov/centers/national-minerals-information-center/mineral-commodity-summaries. Data sheets contain information on the domestic industry structure, Government programs, tariffs, world production and reserves, and 5-year salient statistics for more than 90 individual minerals and materials.

Mineral Industry Surveys—These periodic statistical and economic reports are designed to provide timely statistical data on production, shipments, stocks, and consumption of significant mineral commodities and are available at https://www.usgs.gov/centers/national-minerals-information-center/mineral-industry-surveys. The surveys are issued monthly, quarterly, or at other regular intervals.

Materials Flow Studies—These publications describe the flow of minerals and materials from extraction to ultimate disposition to help better understand the economy, manage the use of natural resources, and protect the environment and are available at https://www.usgs.gov/centers/national-minerals-information-center/materials-flow.

Recycling Reports—These studies illustrate the recycling of metal commodities and identify recycling trends and are available at https://www.usgs.gov/centers/national-minerals-information-center/recycling-statistics-and-information.

Historical Statistics for Mineral and Material Commodities in the United States (Data Series 140)—This report provides a compilation of statistics on production, trade, and use of approximately 90 mineral commodities since as far back as 1900 and is available at https://www.usgs.gov/centers/national-minerals-information-center/historical-statistics-mineral-and-material-commodities.

WHERE TO OBTAIN PUBLICATIONS

- *Mineral Commodity Summaries* and the *Minerals Yearbook* are sold by the U.S. Government Publishing Office. Orders are accepted over the internet at https://bookstore.gpo.gov, by email at ContactCenter@gpo.gov, by telephone toll free (866) 512–1800; Washington, DC, area (202) 512–1800, by fax (202) 512–2104, or through the mail (P.O. Box 979050, St. Louis, MO 63197–9000).
- All current and many past publications are available as downloadable Portable Document Format (PDF) files through https://www.usgs.gov/centers/national-minerals-information-center.

INTRODUCTION

Each mineral commodity chapter of the 2024 edition of the U.S. Geological Survey (USGS) Mineral Commodity Summaries (MCS) includes information on events, trends, and issues for each mineral commodity as well as discussions and tabular presentations on domestic industry structure, Government programs, tariffs, 5-year salient statistics, and world production, reserves, and resources. The MCS is the earliest comprehensive source of 2023 mineral production data for the world. More than 90 individual minerals and materials are covered by 2-page synopses.

Abbreviations and units of measure and definitions of selected terms used in the report are in Appendix A and Appendix B, respectively. Reserves and resources information is in Appendix C, which includes “Part A—Resource and Reserve Classification for Minerals” and “Part B—Sources of Reserves Data.” A directory of USGS minerals information country specialists and their responsibilities is in Appendix D.

The USGS continually strives to improve the value of its publications to users. Constructive comments and suggestions by readers of the MCS 2024 are welcomed.

GOLD

Estimated global gold consumption, excluding exchange-traded funds and other similar investments, was in jewelry, 46%; central banks and other institutions, 23%; physical bars, 16%; official coins and medals and imitation coins, 9%; electrical and electronics, 5%; and other, 1%. In the first 9 months of 2023, global consumption of gold in physical bars decreased by 5%, jewelry was essentially unchanged, electronics decreased by 11%, other industrial applications were essentially unchanged, and coins and medals increased by 6% compared with those in the first 9 months of 2022. During the first 9 months of 2023, gold holdings in central banks increased by 14%, but global investments in gold-based exchange-traded funds and similar investments were 189 tons lower in the first 9 months of 2023 compared with the 20-ton decrease during the first 9 months of 2022. Total global consumption in the first 9 months of 2023 decreased by 3% compared with that in the first 9 months of 2022.[9]

World Mine Production and Reserves: Reserves for Australia, China, Peru, Russia, and Tanzania were revised based on company and Government reports.

	Mine production		Reserves[10]
	2022	2023[e]	
United States	173	170	3,000
Australia	314	310	[11]12,000
Brazil	[e]61	60	2,400
Burkina Faso	58	60	NA
Canada	206	200	2,300
China	372	370	3,000
Ghana	[e]88	90	1,000
Indonesia	105	110	2,600
Kazakhstan	[e]115	130	1,000
Mali	[e]64	60	800
Mexico	[e]120	120	1,400
Peru	97	90	2,300
Russia	[e]310	310	11,100
South Africa	89	100	5,000
Tanzania	57	60	420
Uzbekistan	[e]104	100	1,800
Other countries	726	700	9,200
World total (rounded)	3,060	3,000	59,000

World Resources:[10] An assessment of U.S. gold resources indicated 33,000 tons of gold—15,000 tons in identified and 18,000 tons in undiscovered resources.[12] Nearly one-quarter of the gold in undiscovered resources was estimated to be contained in porphyry copper deposits. The gold resources in the United States, however, are only a small portion of global gold resources.

Substitutes: Base metals clad with gold alloys are widely used to economize on gold in electrical and electronic products and in jewelry; many of these products are continually redesigned to maintain high-utility standards with lower gold content. Generally, palladium, platinum, and silver may substitute for gold.

[e]Estimated. E Net exporter. NA Not available.

[1]One metric ton (1,000 kilograms) = 32,150.7 troy ounces.

[2]Includes refined bullion, dore, ores, concentrates, and precipitates. Excludes waste and scrap, official monetary gold, gold in fabricated items, gold in coins, and net bullion flow (in tons) to market from foreign stocks at the New York Federal Reserve Bank.

[3]Includes gold used in the production of consumer purchased bars, coins, and jewelry. Excludes gold as an investment (except consumer purchased bars and coins). Source: World Gold Council.

[4]Includes gold in the Exchange Stabilization Fund. Stocks were valued at the official price of $42.22 per troy ounce.

[5]Engelhard's average gold price quotation for the year. In 2023, the price was estimated by the U.S. Geological Survey based on data from January through November.

[6]Data from the Mine Safety and Health Administration.

[7]Defined as imports – exports.

[8]Large unreported investor stock purchases preclude calculation of a meaningful net import reliance.

[9]Source: World Gold Council.

[10]See Appendix C for resource and reserve definitions and information concerning data sources.

[11]For Australia, Joint Ore Reserves Committee-compliant or equivalent reserves were 4,600 tons.

[12]Source: U.S. Geological Survey National Mineral Resource Assessment Team, 2000, 1998 assessment of undiscovered deposits of gold, silver, copper, lead, and zinc in the United States: U.S. Geological Survey Circular 1178, 21 p.

SILVER

World silver mine production increased slightly in 2023 to an estimated 26,000 tons, principally as a result of increased production from mines in Mexico and Chile as new silver mines were starting or ramping up. Domestic silver mine production was estimated to have remained essentially unchanged in 2023. In August, a fire took place at an underground silver-lead-zinc mine in Idaho; no personnel were in the mine at the time of the fire. Production was suspended for the remainder of 2023 while work was carried out to bypass the damaged area.

World Mine Production and Reserves: Reserves for Australia, China, India, Peru, Poland, and Russia were revised based on Government reports.

	Mine production		Reserves[9]
	2022	2023[e]	
United States	1,010	1,000	23,000
Argentina	913	910	6,500
Australia	1,167	1,200	[10]94,000
Bolivia	1,214	1,200	22,000
Chile	1,274	1,400	26,000
China	3,480	3,400	72,000
India	694	690	8,000
Kazakhstan	1,053	990	NA
Mexico	6,195	6,400	37,000
Peru	3,079	3,100	110,000
Poland	1,316	1,300	*63,000
Russia	1,280	1,200	92,000
Other countries	2,940	3,000	57,000
World total (rounded)	25,600	26,000	*610,000

World Resources:[9] Although silver was a principal product at several mines, silver was primarily obtained as a byproduct from lead-zinc, copper, and gold mines, in descending order of silver production. The polymetallic ore deposits from which silver was recovered account for more than two-thirds of U.S. and world resources of silver. Most recent silver discoveries have been associated with gold occurrences; however, copper and lead-zinc occurrences that contain byproduct silver will continue to account for a significant share of reserves and resources in the future.

Substitutes: Digital imaging, film with reduced silver content, silverless black-and-white film, and xerography substitute for traditional photographic applications for silver. Surgical pins and plates may be made with stainless steel, tantalum, and titanium in place of silver. Stainless steel may be substituted for silver flatware. Nonsilver batteries may replace silver batteries in some applications. Aluminum and rhodium may be used to replace silver that was traditionally used in mirrors and other reflecting surfaces. Silver may be used to replace more costly metals in catalytic converters for off-road vehicles.

[e]Estimated. NA Not available.

[1]One metric ton (1,000 kilograms) = 32,150.7 troy ounces.

[2]Silver content of base metal ores and concentrates, ash and residues, refined bullion, and dore; excludes coinage and waste and scrap material.

[3]Defined as mine production + secondary production + imports – exports ± adjustments for Government and industry stock changes.

[4]Engelhard's industrial bullion quotations. Source: S&P Global Platts Metals Week.

[5]Source: U.S. Mint. Balance in U.S. Mint only; includes deep storage and working stocks.

[6]Source: U.S. Department of Labor, Mine Safety and Health Administration (MSHA). Only includes mines where silver is the primary product.

[7]Defined as imports – exports ± adjustments for Government and industry stock changes.

[8]Source: Metals Focus, 2023, World silver survey 2023: Silver Institute, prepared by Metals Focus, 84 p. (Accessed July 1, 2023, at https://www.silverinstitute.org/wp-content/uploads/2023/04/World-Silver-Survey-2023.pdf.)

[9]See Appendix C for resource and reserve definitions and information concerning data sources.

[10]For Australia, Joint Ore Reserves Committee-compliant or equivalent reserves were 27,000 tons.

*Correction posted on March 5, 2024.